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Title *Studies of Methods of Discretization for CFD-CEM Applications*

Author/s P Priya, Hema Singh

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Abstract:

Computational fluid dynamics (CFD) is one of the branches of fluid mechanics that uses numerical methods and algorithms to solve and analyze problem related to fluid flows. In the present report, preliminary study on the CFD-CEM applications is carried out. As an initial step, first CFD part is being studied. Various fundamental concepts, methods of grid generation and solving the governing equations are discussed. For a physical problem, the accuracy of the numerical solution depends on the quality of the grid used for discretization. Various standard problems have been solved iteratively using different techniques and the results obtained are validated against those available in open literature. The equations of computational elctromagnetics (CEM) are mathematically similar to that of CFD. Thus both the approaches can be coupled to have multidisciplinary optimization studies.